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EFFORTS TO IMPROVE STUDENT LEARNING OUTCOMES AND ACTIVITIES WITH REALISTIC MATHEMATICS EDUCATION (RME)

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Abstract

The purpose of this research to determine how to improve the activity and student learning outcomes in mathematics with a realistic approach to mathematics in class VII Junior High School 18, the city of Bengkulu . This research is Classroom Action Research (CAR). This research was conducted in three cycles with the flow of the research: Implementation Action Plan Action Observation Reflection . The subjects of research were students of class VII - 5 Junior High School 18 Bengkulu semester academic year 2011/2012, totally of the students 31 people consist of 14 men and 17 women . The research instrument is the end of each test cycle , observation sheets and interview students . Result test data analyzed are the average value and completeness of classical learning . Based on the results of research conducted it can be concluded to improve student activity can be done by providing motivation , divided the students in groups of 4-5 people , randomly students to ask questions, answer questions , respond to , group presentations , work on contextual questions , ask that are not understood , addressing student issues such as noise, and get conclusions after the learning process . based on observation from the average score of each cycle increases the observer , in the first cycle was 18 with a sufficient criterion (C) , improved in the second cycle is 23 with a sufficient criterion (C) , an improved in cycle III is 27.5 with both criteria (B) . Based on observation from the results of analysis the test cycle I to cycle III is known that the student learning outcomes for cycle 1 is the average value of 71.63 students with mastery learning classical 54.83 % , increased in the second cycle the average value 77.87 with thoroughness classical study 74.19 % and third cycle also increases the value of the average student 81.74 with mastery learning classical 90.32 %

Key word: Outcomes , Aktivities , Realistic Mathematics Education (RME)

INTRODUCTION

a. Background

Learning mathematics in schools shows teachers often felt difficulties in delivering material to get students to acquire concepts / principles of mathematics correctly . Because of the learning of mathematics in junior high school still depends on the content of textbooks and rarely communicated with daily activity. Based on result , students are less able to think creatively in mathematics learning and understanding of academic concepts just recitation rote and rarely followed by comprehension or understanding of the practical needs in their lives .

The effective teaching marked with the child 's success in learning . Thus for successful teaching of mathematics , observe how children learn is the first step that must be considered . The principles that need to be developed to pay attention to student learning by Suryadi (2009) is studying the implications of the theory which states that students are actively involved , pay attention to the knowledge students , develop communication of students , develop met cognitive abilities of students and develop appropriate learning environment .

Realistic Mathematics Approach (PMR) according to the principle Hudojo reality that students are able to apply mathematics in daily activity . Besides principle activity aim that children are not only observe to receive mathematical concepts ready to use passively , but must be treated as an active participant . Gravemeijer (1994:90) argues that are three main principles in realistic mathematics learning , namely : Guided reinvention and progressive mathematizing , didactical phenomenology, self - developed models.

Result of low student math learning outcomes . Many students whose value is below the criterion of learning while minimum completeness criteria Bengkulu City Junior High School 18 is ≥ 75 . Classical completeness learning students 80 % , while only 70 % of students achieving grades ≥ 75 . Therefore, researcher would like to propose research entitled " Efforts to improve student learning outcomes and activities with the approach Realistic Mathematics in Class VII 18 Bengkulu City Junior High School " . The principle of reality that students are able to apply mathematics in daily activity.

b. problem Formulation

1. How to improve student learning outcomes with realistic mathematics approach in class VII 18 Bengkulu City Junior High School?
2. How to improve the activity of students with realistic mathematics approach in class VII 18 Bengkulu City Junior High School?

c. Research Objectives

1. To find out how to improve student learning outcomes with realistic mathematics approach in class VII Junior High School 18, the city of Bengkulu.
2. To find out how to improve student activity with a realistic approach to mathematics in class VII Junior High School 18, the city of Bengkulu.

d. The Advantages of this Research

1. Theoretical advantages

a. As a reference to develop studies using Realistic Mathematics Approach.

b. Give the real description on Realistic Mathematics teachers on approach to improve the quality of education.

2. Practical Benefits

a. For students, researcher give information about the importance of new innovations in the learning of mathematics.

b. For teachers, give input and increase their knowledge and concept on learning methods.

c. For schools, give the contributed to improve mathematics teaching methods..

RESEARCH METODE

a. types of Research

Type of research to be conducted is Classroom Action Research (Classroom Action Research). According Arikunto (2009:3) Class action research (PTK) is a scrutiny of the learning activities in the form of an action intentionally raised and occurs within a class simultaneously.

With teacher action research can repair more effective learning and can learn from his own experience . In a classroom action research (CAR) is also acting as a teacher researcher conducting learning activities and at the same time the researchers also carry out research activities .

Arikunto (2009:17) argues that as a general classroom action research model has four stages are commonly passed are : Planning , Acting , Observing , Reflecting

b . subjects Research

The subjects of the research were students of class VII - 5 SMP 18 Bengkulu school year 2011/2012 . selection grade class VII - 5 SMP 18 Bengkulu as subjects in this study due to

grade class VII - 5 SMP 18 Bengkulu city has an average value is low grade math that requires the handling of sufficient learning . Then given treatment approach to learning mathematics with realistic mathematics .

c.Instrumen Research

The data collected is data that is qualitatively and quantitatively. The qualitative data obtained based on observation , while the quantitative data obtained from the tests given to students . Data collection techniques in this study performed using the following instruments :

1 . Observation Sheet

Observation sheet used to obtain data on the evaluation of the learning process by means of the application of learning package on the learning of mathematics with a realistic mathematical approach . This observation sheet includes teacher and student observation sheets used for observation during the learning process.

2 . Tests

The second data collection technique is to use the test . The test is used to measure the basic skills and achievements or achievement. Tests were conducted in this study is the final test of each cycle . The last of each test cycle used to measure data on student learning outcomes in each cycle it has increased or not after the learning process .

3 . Interview

The second data collection technique is to use the interview . Interviews are used to determine students' internal issues . Interviews were conducted every complete cycle by interviewing some of the children are heterogeneous both students who have a low value , medium and high as well as views of the activities of the student activity sheet so that the interview can be a material reflection of each cycle .

a. Data Analysis Techniques

Data obtained from observations and test results will be analyzed study is descriptive quantitative researchers must work with numbers as a manifestation of the symptoms observed .

1 . Sheet observation of student activity

Student observation sheet used to observe activity students during the learning process and as a guide to improve the implementation of the teaching and learning process in the next cycle . Each observation point on the observation sheet given the assessment criteria with the notation as in the following table .

Table Criteria for Assessment Observation Sheet

Assessment Criteria	Notation	Score Value
Less	K	1
enough	C	2
good	B	3

(Sudjana,2006:77)

Table Criteria Assessment For Student Observation Sheet

No.	Assessment Criteria	Scores range
1.	less	10-16
2.	enough	17-23
3.	good	24-30

1. **Tests Learning Outcomes**

The data obtained from the tests were analyzed to determine the level of success of the action. The result of the test is successful if the student has met the completeness criteria Minimal (KKM) is 80% of students received grades > 75.

a. Indicators of Success Measures

Action will be stopped when the criterion measures of success have been achieved. Criteria for success of the action will be determined based on mastery learning established by the school and by consideration of the researcher. The indicators are measures of success:

1. Activeness of students in the learning process increases on each cycle and are in good criterion
2. Based on the criteria of permanence SMP 18 Bengkulu, said students completed the following of subcect if the value is more than KKM is >75. Whereas in classical, a class is considered shoots when 80% of students in class gained ≥ 75
3. Median value increased by 0.5 students per cycle

RESULTS AND DISCUSSION

A. Cycle 1

1. Results Test Cycle 1

Table of Results Test Cycle 1

Average	71,935
Top Value	85
Lowest Value	53
Completed enrollment	17
The number of students do not complete	14
Percentage of classical learning	54,84 %

From the above table the average values obtained 71.935 and students who scored ≥ 75 there are 17 students, so students only 54,84% classically successful. So that action needs to be continued into the second cycle.

2. Observations Student Activity Cycle I

Observations Student Activity Tables

Meeting	Classical Average	Category	Average	Category
Meeting 1	16	Enough	18	Enough
Meeting 2	20	Enough		

The mean score for cycle 1 was 18. Above table in the classical frequency of activity during the learning progress of students is quite active. However, there are still individuals who are less active students, visits of students' scores are still below the value of 5 for the lowest score. So that researchers should strive harder so that students are more active during the learning process.

B. Cycle II

1. Results Test Cycle II

Table of Results Test Cycle II

Average	77,87
Top Value	95
Lowest Value	50
Completed enrollment	23

The number of students do not complete	8
Percentage of classical learning	74,134 %

From the above table the average values obtained 77,87 (an increase of cycle 1) and students who scored ≥ 75 there are 23 students in the classical style that only 74,134 students are still below 80% were successful. So that action needs to be continued to cycle III.

2. Observations Student Activity Cycle II

Observations Student Activity Tables

Meeting	Classical Average	Category	Average	Category
Meeting 1	23	Enough	23	quite active.
Meeting 2	23	Enough		

The mean score for cycle 2 was 23. Above table in the classical frequency of activity during the learning progress of students is quite active

C. Cycle III

1. Results Test Cycle III

Table of Results Test Cycle III

Average	81,742
Top Value	97
Lowest Value	64
Completed enrollment	28
The number of students do not complete	4
Percentage of classical learning	90,32 %

From the above table the average values obtained 81,742 (an increase of cycle II) and students who scored ≥ 75 there are 28 students in the classical style that only 90,32% of students still though there are 4 students who have not been thoroughly studied, but the cycle can be stopped because it was above 80% of students who completed study.

3. Observations Student Activity Cycle II

Observations Student Activity Tables

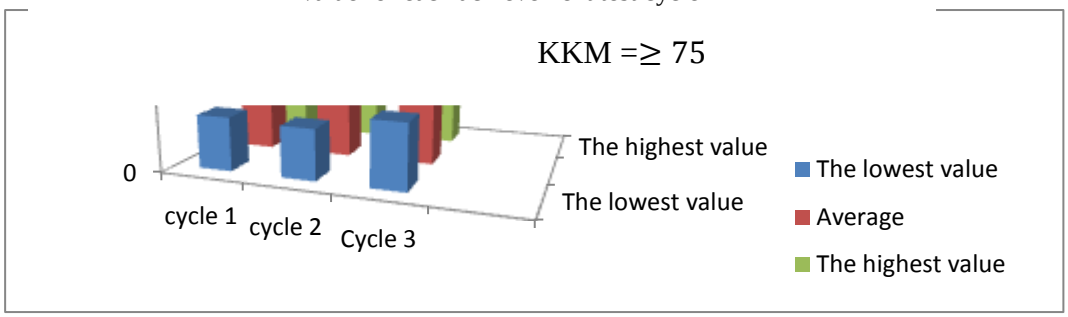
Meeting	Classical Average	Category	Average	Category
Meeting 1	27	Aktive	27,5	Aktive
Meeting 2	28	Aktive		

The mean score was 27.5 for the third cycle. From the table above, in the classical frequency of activity during the learning progress of students is activated so that the cycle can be stopped.

1.2 DISCUSSION

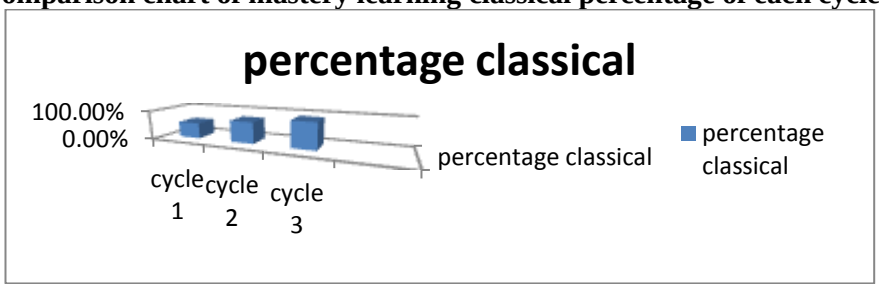
1. Achievement test data analysis of each cycle

Figure 4.1 Comparison of the average value, the highest value and lowest value for each achievement test cycle



From the above chart shows that the lowest values of students in cycle 1 is 53 (≤ KKM) cycle 2 is 50 (≤ KKM) and cycle 3 is 64 (≤ KKM). This shows there is a decrease in the lowest value of the cycle 1 to cycle 2 is still under KKM. While the highest value in cycle 1 is 85, cycle 2 is 95 and cycle 3 is 97. This indicates to the highest value of each class is always rising cycle. The average value of cycle 1 students by 72, cycle 2 by 77,8 and cycle 3 by 81,5 so that the average for the class of cycle 1 to cycle 3 is always increasing.

Comparison chart of mastery learning classical percentage of each cycle

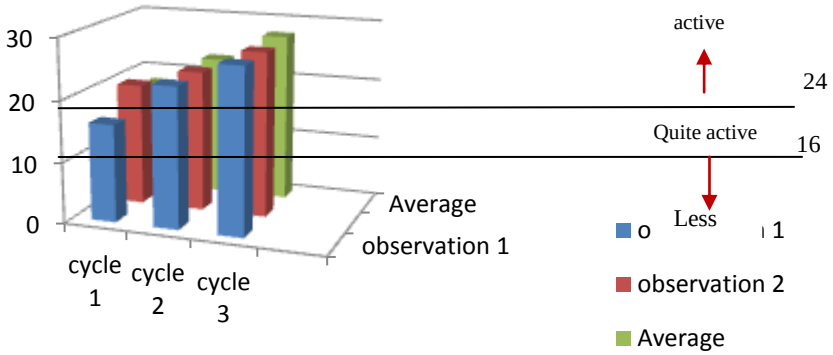


From the graph above data obtained percentage classical students "complete" (score ≥ KKM) in cycle 1 at 17 students or 54,84% whereas cycles of 2 at 23 students or 74,19 and cycles 3 of 28 students or 90,32% . So that each cycle the number of students who scored ≥ KKM always increases.

2. Observation data analysis of student activity

In addition to observing the learning outcomes of students who performed each end of the cycle, the other aspect is that the observed activity of students in the learning process with a realistic mathematical approach on do in each cycle. Student activity that is observed by two observers using student activity sheets based observation realistic mathematics education. The following graph shows a comparison of the activity of students in the learning process using a realistic mathematical approach (PMR) in each cycle..

Comparison chart classical observations of student activity each cycle



The graph above shows that the activity of students every cycle has increased. In the learning process with realistic mathematics approach, cycle 1 observation to observation 1 and observation scores 16 to 2 gives a score of 20 so that the average score was 18 (quite active). While on approach to learning with realistic mathematics in cycle 2 observation to give a score of 23 and 1 to 2 observations 23 so scoring average score was 23 (quite active). While on approach to learning mathematics realistic observation in cycle 3 to 1 gives a score of 27 and 2 observations to give a score of 28, so that the average score was 27.5 (active).

In the second cycle , the observation of student activity is still in the category of pretty . However, there is an increase in the scale of values of some activities . This is because researchers fix the problems encountered in silklus I. In the second cycle , aspects of which get an appraisal that is still lacking in the category of students to comment , in response to the settlement of the problem of other students , there is less of a rise in activity from which students brave enough to explain / answer the next question to ask the class or commented this is because researchers add value to the student who asked or answered the next class . There are also aspects that have a good value is the average student has answered the questions well because students are already getting used to the group . While other aspects of Yag included in the assessment of students still enough .

In the third cycle , aspects of which have been observed on both . From the analysis based on the observations of researchers , students have been able to complete all tasks assigned by either although still require the guidance of a teacher . Communication students in the group are also quite good for students who have a higher capability would provide an explanation when a friend in the group who have not understand although sometimes there are also some students who are still making a noise in the group .

Increased activity of students in each cycle is active because students habitually to the applied learning . Students in the group has responsibility for the group's work to be done and the motivation of students to be better than the other groups .

CONCLUSION AND RECOMMENDATIONS

a. Conclusion

The study concluded that:

1. The learning process with PMR can increase the activity of students in a way the students were given a contextual problem that concrete objects, students actively understand contextual problem with his group of friends with the help of worksheets that describe the steps. Teachers also provide motivation to learn, for example giving praise to students who actively asked, argue and noise reprimand students by asking questions directly to the student. Based on observation from the average score of each cycle increases the observer, in the first cycle was 18 with a sufficient criterion (C), increased in the second cycle is 23 with a sufficient criterion (C), an increase in cycle III is 27,5 with both criteria (B)
2. Learning through PMR can improve student learning outcomes as a concept at this stage of completing the discovery of contextual issues that make students as active participants because the teacher just facilitators so that students become easier to understand and remember the material quadrilateral formulas. Teachers also make improvements over every cycle as guiding students in the process of discovery of the concept of rectangular material increases the value of students each cycle, it can be seen from the results of the analysis of the test cycle I to cycle III is known that student learning outcomes are for cycle

1 value of the average student 71,63 with classical learning completeness 54.83%, increased in the second cycle the average value 77,87 to 74,19% mastery learning classical and third cycle also increases the average value of 81,74 students with mastery learning classical 90,32%

b. Recommendations

PMR learning process should be accompanied by worksheets that are simple and easy to understand student to assist the learning process

1. Step of problem solving should be clear and systematic
2. The formation is a heterogeneous group of 4-5 people to assist in solving problems discussed
3. Should be teachers prepare / anticipate from scratch tangible objects that are easily understood by the students to the learning process. Because the objects are not appropriate or necessary sometimes difficult brought in the class. So the teacher must be able to think of objects are easy to carry to class and easily understood by students
4. Regarding time, it takes quite a lot of time in the learning process because students do it their own concepts. For anticipation of these worksheets that teachers make the steps easier to understand students.

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